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10/699,431	10/30/2003	Jari Mäkinen	KOLS.062PA	3286
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EXAMINER				
KOVACEK, DAVID M				
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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

### Office Action Summary

**Application No.**

10/699,431

**Applicant(s)**

MAKINEN ET AL.

**Examiner**

DAVID KOVACEK

**Art Unit**

2626

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 13 November 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-18 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 30 October 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-8508)
- Paper No(s)/Mail Date \_\_\_\_\_

- 4) ☐ Interview Summary (PTO-413)
- Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

### **DETAILED ACTION**

1. This Office Action is in response to the applicants amendment, filed 11/13/2007, in which the applicant presents new **claims 16-18**, and submits arguments for patentability over the prior art.

#### ***Response to Amendment***

2. The applicant's amendments to the specification with respect to paragraph have been considered and are accepted.
3. The applicant's amendments to the claims with respect to the spacing of the lines have been considered and are accepted. It is noted by the examiner that formal acceptance of the conditions of the claims is not an indication of allowability of the claims over the prior art. Appropriate rejections are included in this Office Action in the relevant sections below.

#### ***Response to Arguments***

4. Applicant's arguments, see Remarks/Arguments, filed 11/13/2007, with respect to the line spacing of the specification and the labeling of reference numeral 110 in Fig. 1 have been fully considered and are persuasive. The objections to the specification in relation to these matters have been withdrawn.

5. Applicant's arguments regarding the objection to the specification directed towards the language of paragraph 0011 have been fully considered but they are not persuasive.

Specifically, the language of paragraph 0011 is written in such a way that it is awkward to the reader and invites misinterpretation, as demonstrated by the prior misinterpretation by the examiner. Because the specification is required to teach the implementation of the claims, it is necessary that the specification be written as clearly as possible. Therefore, the arguments are non-persuasive and the objection remains. It has been repeated below in the relevant sections of this Office Action for convenience.

6. Similarly, the applicant's arguments regarding the objection to the specification directed towards the language of paragraph 0036 have been fully considered but they are not persuasive.

Specifically, the language of paragraph 0036 is written in such a way that it is awkward to the reader and invites misinterpretation, as demonstrated by the prior misinterpretation by the examiner. Because the specification is required to teach the implementation of the claims, it is necessary that the specification be written as clearly as possible. Therefore, the arguments are non-persuasive and the objection remains. It has been repeated below in the relevant sections of this Office Action for convenience.

7. Applicant's arguments filed 11/13/2007 regarding the limitations of **claim 1** in view of the cited reference Demetrescu (EP 1,126,651 A1), cited in the previous Office Action, have been fully considered but they are not persuasive.

Specifically, the applicant claims that Demetrescu has not been shown to teach receiving information on an active codec mode set, as claimed in each of the independent claims (Remarks/Arguments: p. 10, paragraph 4), however, the term *active codec mode set* is analogous to the modes of operation as disclosed by Demetrescu in the cited portions (Col. 2, paragraph 0015). Demetrescu further discloses that the modes of operation are directed to the behavior of an active codec mode throughout the disclosure of the invention, including the transmission of controller signals for the modes of operation (Col. 3, paragraphs 0019-0020; Page 7, paragraph 0056).

The applicant further argues that Demetrescu fails to teach encoding speech signals with activated modes such that a speech codec mode of the substantially lowest bit rate is adapted to speech frames so that the level of residual error in coding will be minimized in view of the channel conditions (Remarks/Arguments: p. 11, paragraph 1). It is noted by the examiner that the applicant further submits that Demetrescu specifically teaches that a high rate is intentionally set in good channel conditions.

It is noted by the examiner that the limitation of **claim 1** in question specifically includes the limitation of ...so that the level of residual error in coding will be minimized in view of the channel conditions. It is

noted by the examiner that Demetrescu explicitly discloses that "the rate of coding is varied in accordance with the conditions in the channel" and that "if signaling conditions are poor, a slow rate is used. If conditions are good, a fast rate is used (Col. 1, paragraph 0005)." This disclosure is analogous to minimizing residual error in transmission by controlling bitrate, as is provided in the incident limitation of **claim 1**.

It is further noted by the examiner that the broadest reasonable interpretation of "lowest bit rate...so that the level of residual error in coding will be minimized in view of the channel conditions" according to one of ordinary skill in the art would comprise a system where if channel conditions are good and the highest bit rate possible provides the lowest residual error, the highest bit rate is used, such as in the disclosure of Demetrescu. The examiner submits that the inclusion of the limitation of "so that the level of residual error in coding will be minimized" is presented such that there is no indication within the language of the claims that presents higher priority to either minimizing residual error or minimizing bit rate, and therefore one of ordinary skill in the art could view either limitation as the predominant determining factor for transmission bit-rate. Therefore, the disclosure of Demetrescu does indeed teach the limitations of **claim 1**, and for at least this reason the arguments of patentability over Demetrescu or non-persuasive. The previous rejections of the claims are included below in the relevant sections of this Office Action.

Regarding the applicant's argument that none of the prior art references teach adapting the target level of residual error in coding in the

speech codec mode selection, the applicant specifically argues that Gao (US 6,574,593 B1), cited in the previous Office Action, does not overcome this limitation.

In the previous Office Action, the examiner cited Gao in disclosing a determination of a Mode Signal for the control of operations in a speech compression system (Col. 7, lines 19-28). Said Mode Signal is the primary factor of residual error in the disclosure of Gao. Gao further discloses that said determination is based upon a plurality of factors, including desired quality of post-processed synthesized speech and available bandwidth (Col. 7, lines 27). Both of these factors are directly related to average bit rate and imply such an association to one of ordinary skill in the art. It is further noted that the standard for rejection using a combination of references under 35 USC §103(a) does not require explicit anticipation and instead requires that the limitations of the claim would be rendered obvious to one of ordinary skill in the art at the time the invention was made. Because one of ordinary skill in the art would be aware of the connection between average bit rate and both synthesized speech quality and bandwidth constraints, the disclosure of Gao renders obvious the usage of average bit rate as an indicator of speech quality in view of a known bandwidth. For at least this reason, the disclosure of Gao renders obvious the adaptation of target residual error based upon average bit rate.

It is further noted by the examiner that the applicant does not provide any reasoning to explain why the initial citation of Gao in the previous Office Action is insufficient to overcome the limitations of **claim 3**.

Regarding the provisional rejections of **claims 1-5 and 8** in accordance with the doctrine of double patenting, it is noted that previously co-pending application 10/732,369 has now gone abandoned, and therefore the provisional double patenting rejections with regard to this application are withdrawn.

The remaining rejections of the previous Office Action, based on double patenting in view of co-pending applications 10/676,269 (still pending) and 10/804,099 (in condition for allowance, but not yet issue) will be maintained until such time that a terminal disclaimer is filed or the conflict between claims of each of the applications is resolved.

### ***Specification***

8. The disclosure is objected to because of the following informalities:
- Page 3, paragraph 0011, lines 2-3 (Under "BRIEF SUMMARY OF THE INVENTION") reads, "...are adaptive such that responsive to changes..." It is the examiner's suggestion that this instead read "...are adaptive such that in response [responsive] to changes..."
  - Page 11, paragraph 0036, lines 3-4 (under "DETAILED DESCRIPTION OF THE INVENTION") reads, "...without that the speech quality deteriorates." It is the examiner's suggestion that this instead read, "...so that [without that] the speech quality does not deteriorate[s]." This is the interpretation used for purposes of examination.

Appropriate correction is required.



***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

9. **Claims 1-2, 8, 15 and 17-18** are rejected under 35 U.S.C. 102(b) as being anticipated by Demetrescu.

Regarding **claim 1**, Demetrescu teaches a method of link adaptation using a plurality of speech codec modes for transmission in a telecommunications network including:

- receiving information on an active codec mode supported by the telecommunications network (Paragraph 0015);
- activating the supported codec mode that corresponds to the active moved set of the telecommunications network (Paragraphs 0028, 0037-0038); and
- encoding signals to be applied to the codec with the activated speech codec modes such that there is a minimization of bitrate and minimization of error in coding at the same time (Paragraphs 0005, 0032).

Regarding **claim 2**, Demetrescu further teaches:

- the method responds to changes in conditions of the telecommunications network (Paragraphs 0037-0038);
- the method responds to changes in the active codec mode set (Paragraph 0056);
- the method adapts the parameters to be used in the speech codec mode selection to correspond to new channel conditions of the telecommunications network or to a new active codec mode set (Paragraphs 0039, 0041).

Regarding **claim 8**, this claim has similar limitations to **claim 1**, and is rejected for the same reasons.

Regarding **claim 15**, this claim has similar limitations to **claim 1**, and is rejected for the same reasons.

Regarding **claims 17-18**, each of these claims is very similar to **claim 1**, and is rejected for the same reasons.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the

invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. **Claims 3, 9-10 and 16** rejected under 35 U.S.C. 103(a) as being unpatentable over Demetrescu in view of US Patent 6,574,593 B1, hereinafter referred to as Gao.

Regarding **claim 3**, Demetrescu teaches all limitations of **claim 1** as applied above, but does not teach the adapting of the target level of residual error in speech codec mode selection and bit rate to an average bit rate in the telecommunications network.

Gao teaches a speech coder capable of selectively activating codec modes to maximize quality while maintaining a desired average bit rate (Col. 5, lines 19-22; col. 7, lines 19-28).

Gao additionally provides motivation in the need for this method to maximize available bandwidth for optimizing the perceptual quality of synthesized speech (Col. 4, line 66 – col. 5, line 6).

Therefore, the examiner contends that it would have been obvious for one of ordinary skill in the art at the time the invention was made to modify Demetrescu using the teachings of Gao in order to optimize perceptual quality of synthesized speech on a telecommunications network while still maintaining average bit rate of the network to maximize use of available bandwidth.

Regarding **claim 9**, Demetrescu teaches all limitations of **claim 8** as applied above, but this claim has similar further limitations to **claim 3** and is rejected for the same reasons.

Regarding **claim 10**, Demetrescu further teaches:

- a means for determining a speech codec mode for a speech frame by determining a codec mode of the lowest bit rate and selecting which mode minimizes the residual error in coding (Paragraph 0005); and
- a means for adapting the parameters to be used in the speech codec mode selection to correspond to new channel conditions of the telecommunications network or to a new active codec mode set (Paragraph 0039, 0041).

Regarding **claim 16**, Demetrescu teaches all limitations of **claim 15** as applied above, and additionally teaches encoding signals to be applied to the codec with the activated speech codec modes such that there is a minimization of bitrate and minimization of error in coding at the same time (Paragraphs 0005, 0032). The further limitations of this claim are similar to the limitations of **claim 3** and it is rejected for the same reasons.

11. **Claims 4-6** are rejected under 35 U.S.C. 103(a) as being unpatentable over Demetrescu in view of US Patent 5,689,615, hereinafter referred to as Benyassine.

Regarding **claim 4**, Demetrescu teaches all limitations of **claim 1** as applied above, but does not teach the additional limitations of **claim 4**.

Benyassine teaches:

- performing a sub-process on each frame of a speech signal to obtain parameters (Col. 3, lines 39-48; col. 3, line 64 – col. 4, line 1); and
- adapting a speech codec mode on the basis of the parameters obtained from said sub-process (Col. 3, line 64 – col. 4, line 1; claim 7).

Benyassine provides motivation by disclosing the use of this method to create a more natural synthesized background noise without a significant reduction in efficiency (Col. 2, lines 8-13).

Therefore, the examiner contends that it would have been obvious to one of ordinary skill at the art at the time the invention was made to modify Demetrescu using the teachings of Benyassine to create a more natural synthesized background noise in speech transmission without a significant reduction in efficiency.

Regarding **claim 5**, Benyassine further teaches that the sub-process is VAD parameterization (Col. 3, lines 30-48; claim 7).

Regarding **claim 6**, Benyassine further teaches:

- adapting a low bit rate speech codec mode for appropriate values of VAD parameters (Col. 3, line 64 – col. 4, line 3, claim 7); and

- adapting a high bit rate speech codec mode for appropriate values of VAD parameters (Col. 3, line 64 – col.4, line 3; claim 7).

12. **Claim 7** is rejected under 35 U.S.C. 103(a) as being unpatentable over Demetrescu in view of Benyassine as applied to **claim 4** above, and further in view of the IEEE article "Phonetically-Based Vector Excitation Coding of Speech at 3.6 kbps" by Wang and Allen, hereinafter referred to as Wang.

Regarding **claim 7**, this Demetrescu in view of Benyassine teaches all limitations of **claim 4** as applied above, but does not teach any further limitations of this claim.

Wang teaches the parameterization of speech frames based upon features including spectral content, the gains of different speech frame parameters, and zero crossings of a speech frame (p. 50, col. 2, paragraph 2).

Wang further teaches the classification of a speech frame based upon said parameterizations of that speech frame (p. 50, col. 1, paragraph 2; p. 50, col. 2, paragraph 2).

Wang further provides motivation by disclosing the usefulness of this parameterization in utilizing phonetic integrity as a measure of perceptual quality of speech (p. 49, col. 1, paragraph 4; p. 50, col. 1, paragraph 4).

Therefore, the examiner contends that it would have been obvious for one of ordinary skill in the art at the time the invention was made to modify Demetrescu in view of Benyassine using the teachings of Wang in order to code speech using phonetic

integrity to ensure high perceptual quality while maintaining a natural synthesized background noise without a significant reduction in efficiency.

***Double Patenting***

13. **Claims 1 and 8** are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 10 and 15 of copending Application No. 10/804,099. Although the conflicting claims are not identical, they are not patentably distinct from each other because **claims 1 and 8** of the current application cover the same material of claims 10 and 15 of Application No. 10/804,099 respectively.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

14. **Claims 1, 4-5, and 8** provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1, 3, 12, and 17 of copending Application No. 10/676,269. Although the conflicting claims are not identical, they are not patentably distinct from each other because **claims 1, 4-5, and 8** of the current application cover the same material as one or more of claims 1, 3, 12, and/or 17 of Application No. 10/676,269.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

***Conclusion***

15. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to **DAVID KOVACEK** whose telephone number is (571)270-3135. The examiner can normally be reached on **M-F 9:00am - 5:30pm**.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Hudspeth can be reached on (571) 272-7843. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.



Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/DMK/, 04/24/2008  
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Supervisory Patent Examiner, Art Unit 2626